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UNS Electric, Inc.

88 East Broadway Blvd. | Post Office Box 711 | HQE910 | Tucson, AZ 85702-1702

April 1, 2019

Docket Control
Arizona Corporation Commission
1200 West Washington Street
Phoenix, AZ 85007

Re: Notice of Filing - UNS Electric, Inc.'s REST Compliance Report for the year ended 2018,
Docket No. E-00000R-16-0084

Pursuant to Arizona Administrative Code R14-2-1812, each Affected Utility shall file with Docket Control a report that describes its compliance with the requirements of the Renewable Energy Standard and Tariff ("REST") Rules. UNS Electric, Inc. hereby files its REST Compliance Report for year-end 2018.

Because the Report contains confidential information, such information has been redacted from this filing. The un-redacted Report is being provided directly to Staff pursuant to the terms of the Protective Agreement executed in Docket No. E-00000R-16-0084

If you have questions or comments, please contact me at (520) 884-3680.

Sincerely,

Melissa Morales
Regulatory Services

cc: Compliance Section

Arizona Corporation Commission

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Tucson Electric Power

**Response to R14-2-1812 Utility Reporting Requirements
of the
Arizona Corporation Commission**

**COMPLIANCE REPORT AND
RENEWABLE ENERGY DATA
FOR 2018**

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Executive Summary

Compliance with 2018 Renewable Energy Standard (“RES”) Requirements

For calendar year 2018, the Arizona Corporation Commission (“ACC” or “Commission”) established an annual RES requirement of 8.0 percent¹ of the utility’s 2018 retail kilowatt-hour (“kWh”) sales, with 30 percent² of the total requirement to be fulfilled with energy produced from Distributed Renewable Energy (“DRE”) Resources. This separate DRE carve-out provision requires that one-half³ of the total DRE requirement come from residential resources and one-half from non-residential resources. For purposes of RES compliance tracking, A.A.C. R14-2-1801(N) defines a Renewable Energy Credit (“REC”) as the unit created to track kWh derived from a DRE or kWh equivalent of conventional energy resources displaced by a DRE. Please note that throughout this Compliance Report, Tucson Electric Power Co. (“TEP” or “Company”) reports its production in both kWh and RECs.

In 2018, the Company’s total Eligible Renewable Energy Resources, including Annualized Production and In-Progress projects, was 924,188,660 kWh, which is equivalent to 10.4 percent of TEP’s total 2018 retail sales. Total DRE resources for the year was 208,815,779 kWh. Total Residential actual production was 61.4% of the 2018 residential requirement, and Non-Residential actual production was 134.1% of the 2018 non-residential requirement. TEP will retire 712,009,920 RECs for 2018 (actual production of Residential DRE of 65,586,539; Non-Residential DRE of 106,801,488; and Non-DRE of 539,663,922). Additionally, TEP reports the non-eligible renewable energy resources on its system which, when combined with the total eligible renewable energy resources for illustrative purposes only, equals 1,401,632,045 kWh and 15.8 percent of 2018 retail sales.

The Company requested a waiver for 2018 of the residential DRE requirement in its 2018 RES Implementation Plan, which was subsequently approved by the Commission in Decision 76538. As shown in Table 1b, the annual residential DRE compliance measure required the retirement of 106,801,488 RECs. However, the Company only has the rights to retire 65,586,539 residential DRE RECs. Consistent with Commission Decision No. 76538, and the associated changes to the Arizona RES to acknowledge all renewable resources within the Company’s service territory, the Company will use the

¹ A.A.C. R14-2-1804(B)

² A.A.C. R14-2-1805(B)

³ A.A.C. R14-2-1805(D)

waiver based on the production values shown in Table 1a for the total non-incentivized DRE production which are not included in the RECs available for retirement.

Company's Eligible Renewable Energy Resources

Table 1a shows the following information:

1. Actual energy production⁴
2. Annualized energy production⁵
3. Generation capacity, disaggregated by technology type⁶

Compliance Report - Energy 2018

Tucson Electric Power Company

Table 1a-Renewable Resources

Resource	Install Year	Technology	Ownership	MW(AC)	MW(DC)	Production (Actual) kWh	Production Actual or Annualized ⁵ kWh	Multiplier Credits ⁶	Total kWh or Equivalent
GENERATION									
UTILITY OWNED:									
Springerville 1	2001-2004	Fixed Tilt	TEP	3.68	4.60	2,000,063	2,000,063	1.5	3,000,095
Springerville 2	2010	Fixed Tilt	TEP	1.45	1.81	5,076,023	5,076,023	1.0	5,076,023
White Mountain	2014	Fixed Tilt/LCPV	TEP	8.25	10.00	17,545,469	17,545,469	1.0	17,545,469
U of A Tech Park 1	2010	Single Axis	TEP	1.28	1.50	3,016,590	3,016,590	1.0	3,016,590
U of A Tech Park 2	2011	Fixed Tilt	TEP	4.00	5.00	8,572,449	8,572,449	1.0	8,572,449
Headquarters	2012	Fixed Tilt	TEP	0.04	0.05	14,814	14,814	1.0	14,814
Warehouse OH	2012	Fixed Tilt	TEP	0.40	0.50	914,937	914,937	1.0	914,937
Prairie Fire	2012	Fixed Tilt	TEP	4.00	5.00	8,306,906	8,306,906	1.0	8,306,906
Demoss-Petrie	2001	Fixed Tilt	TEP	0.18	0.22	0	0	1.0	0
Sundt Augmentation	2014	Solar Steam Augmentation	TEP	5.00		38,100	38,100	1.0	38,100
Total Utility Owned				28.28	28.78	45,485,352	45,485,352		46,485,383
Purchase Power Agreements (PPAs):									
Aminox UASTP	2011	Dual Axis	PPA	1.20	2.00	173,913	173,913	1.0	173,913
Gatos Montes	2012	Fixed Axis	PPA	4.92	6.00	8,950,442	8,950,442	1.0	8,950,442
Avra Valley	2012	Single Axis	PPA	25.00	34.41	72,187,362	72,187,362	1.0	72,187,362
Picture Rocks	2012	Single Axis	PPA	20.00	25.00	52,827,485	52,827,485	1.0	52,827,485
E. ON Tech Park	2012	Single Axis	PPA	4.80	6.60	13,385,900	13,385,900	1.0	13,385,900
Valencia Solar	2013	Single Axis	PPA	10.00	13.20	24,921,558	24,921,558	1.0	24,921,558
Macho Springs	2011	Wind	PPA	50.40		126,569,000	126,569,000	1.0	126,569,000
Avalon Solar	2014	Single Axis	PPA	28.34	35.00	74,950,004	74,950,004	1.0	74,950,004
Cogenra	2014	CPV Single Axis	PPA	1.04	0.88	1,919,552	1,919,552	1.0	1,919,552
Red Horse Solar	2015	Single Axis	PPA	41.00	51.25	157,115,556	157,115,556	1.0	157,115,556
Red Horse Wind	2015	Wind	PPA	30.00		68,989,516	68,989,516	1.0	68,989,516
Avalon PHII	2016	Single Axis	PPA	17.22	21.53	43,551,274	43,551,274	1.0	43,551,274
Iron Horse	2017	Single Axis	PPA	2.04	2.40	4,669,316	4,669,316	1.5	7,003,974
Los Reales Landfill	1998	Biomass	PPA	4.00		25,134,838	25,134,838	1.5	37,702,257
Total PPAs				239.96	198.27	675,345,718	675,345,718		690,247,795
Gross Total				268.24	227.05	720,831,070	720,831,070		736,733,178
Adjustment of 10% wholesale OG applied to Non-Residential Requirement						(21,360,298)	(21,360,298)		(21,360,298)
Total Production of AC & DC Facilities						699,470,772	699,470,772		715,372,881
Subtotal Capacity of AC Facilities				84.40					
Subtotal Capacity of DC Facilities Including AC Equivalent				183.84	227.05				
Total AC Generation Capacity (excl. Credits)				268.24		720,831,070			

Notes to Table 1a are provided on Page 6

⁴ As required by A.A.C. R-14-2-1812(B)(1)

⁵ As required by A.A.C. R-14-2-1812(B)(2)

⁶ As required by A.A.C. R-14-2-1812(B)(3)

Table 1a continued.

DISTRIBUTED ENERGY (DRE)	Install Year	Technology	Ownership	MW(AC)	MW(DC)	Production (Actual) kWh	Production Actual or Annualized ¹ kWh	Multiplier Credits ²	Total kWh or Equivalent
RESIDENTIAL:									
Incentive									
Installed									
Purchase		PV	Customer Owned		17.57				
Lease		PV	Leased		14.46				
Total-PV Incentive					32.03	55,104,735	55,104,735	1.0	55,104,735
Thermal		Thermal	Customer Owned			6,740,250	6,740,250	1.0	6,740,250
Total-Thermal						6,740,250	6,740,250		6,740,250
Utility Owned:									
Installed					2.68	3,741,554	3,741,554	1.0	3,741,554
In Progress					0			1.0	0
Total-PV Utility Owned		PV	Utility Owned		2.68	3,741,554	3,741,554		3,741,554
Subtotal of Installed Residential Incentive & Utility Owned Production						65,586,539	65,586,539		65,586,539
Subtotal Capacity of DC Facilities Including AC Equivalent				29.91	37.39				
Total AC Generation Capacity (excl. Credits)				29.91					
RESIDENTIAL:									
Non-Incentive									
Installed									
Purchase		PV	Customer Owned		48.07				
Lease		PV	Leased		75.83				
Total-PV Installed					123.9	164,649,695	223,020,000		223,020,000
In Progress									
Purchase		PV	Customer Owned		6.81				
Lease		PV	Leased		4.69				
Total-PV In-Progress					11.5		20,700,000		20,700,000
Subtotal Non-Incentive Installed & In Progress						164,649,695	243,720,000		243,720,000
Subtotal Capacity of DC Facilities Including AC Equivalent				108.32	135.40				
DISTRIBUTED ENERGY (DRE)									
	Install Year	Technology	Ownership	MW(AC)	MW(DC)	Production (Actual) kWh	Production Actual or Annualized ¹ kWh	Multiplier Credits ²	Total kWh or Equivalent
Non-RESIDENTIAL:									
Up-Front Incentive									
Installed									
Purchase		PV	Customer Owned		4.30				
Lease		PV	Leased		1.39				
Total-PV UFI				4.55	5.69	7,223,474	7,223,474	1.0	7,223,474
Thermal		Thermal	Customer Owned			4,670,985	4,670,985	1.0	4,670,985
Wind		Wind	Customer Owned	0.01		4,659	4,659	1.0	4,659
Daylighting		Daylighting	Customer Owned			188,539	188,539	1.0	188,539
Total-Up-Front Incentive				4.56	5.69	12,087,657	12,087,657		12,087,657
Performance Based Incentives:									
PV		PV	Customer Owned		41.33	71,012,535	71,012,535	1.0	71,012,535
Chilling		Chilling	Customer Owned			1,578,276	1,578,276	1.0	1,578,276
Total-PBI				33.06	41.33	72,590,811	72,590,811		72,590,811
Utility Owned:									
Fort Huachuca	2014	Fixed Axis	Utility Owned	13.60	17.20	28,579,542	28,579,542	1.0	28,579,542
Fort Huachuca II	2017	Fixed Axis	Utility Owned	4.40	5.00	8,405,748	8,405,748	1.0	8,405,748
Subtotal of Installed Non-Residential Incentive & Utility Owned Production						121,663,758	121,663,758		121,663,758
Subtotal Capacity of DC Facilities Including AC Equivalent				55.63	69.22				
Total AC Generation Capacity				55.63					

Continuation of Non-Residential Credits, summations, and notes on following page.

Notes to Table 1a are provided on Page 6

Table 1a continued.

Credits					
Wholesale (10% of DG Req)			21,360,298	21,360,298	21,360,298
Subtotal After Wholesale Credit			143,024,055	143,024,055	143,024,055
Residential Credits					
In-State Manufacturing and Installation Content			38,992		38,992
In-State Plant Installation Credit			83,096		83,096
Distributed Generation Credit			83,096		83,096
Subtotal After Residential Credits			143,229,239		143,229,239

Non-Incentive / Non-Residential:									
DISTRIBUTED ENERGY (DRE)	Install Year	Technology	Ownership	MW(AC)	MW(DC)	Production (Actual) kWh	Production Actual or Annualized ² kWh	Multiplier Credits ³	Total kWh or Equivalent
Non-Incentive									
Installed									
Purchase		PV	Owned		58.48				
Lease		PV	Leased		17.77				
Total PV Installed					76.25	76,027,794	137,250,000		137,250,000
In-Progress									
Purchase		PV	Owned		16.27				
Lease		PV	Leased		37.33				
Total PV In-Progress					53.60		96,473,385		96,473,385
Subtotal DE - Non-Residential Installed & In-Progress						76,027,794	233,723,385		233,723,385
Subtotal Capacity of DC Facilities Including AC Equivalent				103.88	129.85				

	MW(AC)	MW(DC)	Production (Actual) kWh	Production Actual or Annualized ² kWh	Total kWh or Equivalent
Summary & Notes:					
Subtotal Distributed Energy ~Incentive (B + C)	85.54	106.61	208,815,779	208,610,595	208,815,779
Subtotal Distributed Energy ~ Non-Incentive Installed & In-Progress (H + I)	212.20	265.25			477,443,385
Total RES Resources Available for Compliance (A + D)	85.54	106.61	908,286,551	908,081,367	924,188,660
Total 2018 RES Resources Available for Retirement ⁴					908,286,551
Total Incentive & Owned AC Capacity & AC Equivalent ⁴	353.78				

Notes to Table 1a:

¹ Assumes the following kWh per installed kW:

Residential and Non-Residential: 1800 kWh/kW (based on average systems installed)
 Residential Utility Owned: 1900 kWh/kW (newer technology installed)
 Utility Generation, Fixed Tilt: 2000 kWh/kW
 Utility Generation, Single-Axis Tracker: 2200 kWh/kW
 Utility Generation, Dual-Axis Tracker: 2400 kWh/kW
 Utility Generation, Wind: 2200 kWh/kW

² The Mwac equivalent is the summation of the current year Actual Utility Owned MW(AC) value plus the DG DC capacity converted from DC to AC using an 80% DC-AC conversion factor.³ Manufacturing Credit Multiplier

2,190.0

In-State Power Plant Extra Credit (1997-2005)

0.5

In-State Manufacturing and Installation Content (1997-2005)

0.5 X (% in-state content in installed plant)

DRE Solar Electric Generator and Solar Incentive Program (1997-2005)

0.5

⁴ Does not include Annualized Production or In-Progress

Renewable Energy Credit Retirement Summary

Table 1b shows the breakdown of RECs used to satisfy both the annual renewable energy requirement and the DRE requirement⁷.

Table 1b - 2018 Compliance Summary

			Compliance Measure (kWh)	Available RECs for Retirement	Carry Forward
Retail Sales	Actual kWh Sales for 2018		8,900,124,000		
2017 Carry Forward Balance					
Non-DRE Balance				991,518,226	991,518,226
Total RES Requirement	% of Retail Sales	8%	712,009,920	a	
DRE Requirement	% of RES Requirement	30%	213,602,976		
Residential DRE	% of DRE Requirement	50%	106,801,488	65,586,539	
Non-Residential DRE	% of DRE Requirement	50%	106,801,488	143,229,239	36,427,751
Non-DRE¹	Non-DRE				
			539,621,893	699,470,772	159,848,879
Total Resources Available for the 2018 REC Retirement				1,899,804,777	
Total 2018 Retirement:				712,009,920	
Residential DRE				65,586,539	b
Non-Residential DRE				106,801,488	c
Non-DRE				539,621,893	
2018 Residential DRE Carry Forward Balance					0
2018 Non-Residential DRE Carry Forward Balance					36,427,751
2018 Non-DRE Carry Forward Balance					1,151,367,106
Total 2018 Carry Forward Balance					1,187,794,857

¹ Non-DRE=Total RES Requirement(a)-Residential DRE RECs (b) - Non-Res DRE RECs (c)

⁷ As required by A.A.C. R14-2-1812(B)(5)

Renewable Energy Standard Resource Costs (REDACTED)

This section is **Competitively Confidential**



⁸ As required by A.A.C. R14-2-1812(B)(4)

Renewable Energy Standard Incentive Costs

Table 2b shows cost information regarding \$/MWh of energy obtained from eligible renewable energy resources and \$/MW of generation capacity, by technology, that can be attributed to the RES⁹ for 3rd-party projects receiving incentives.

Table 2b - RES Cash Incentive Costs Tucson Electric Power Company

2017 Distributed Energy Cash Incentive Program Costs

	MW	MWh	Production Based Incentives (\$/MW) (\$/MWh)		2017
Non-Residential:					
PBI					
PV					
PBI Legacy					
PV		74,038		\$ 97.88	\$ 7,246,830
Solar Chilling		1,883		120.53	226,997
<i>Subtotal: Non-Residential</i>		75,921			\$ 7,473,827

Notes to Table:

¹ Based on expected annual system production.

⁹ As required by A.A.C. R14-2-1812(B)(4)

ACC Approved Budget

Tucson Electric Power ACC Budget January through December 2018

	<u>Jan - Dec 18</u>
Revenue	
Tariff Billing	\$ 53,585,443
Carryforward from Previous Year	(21,032)
Total Revenue	<u>53,564,411</u>
Expenses	
Purchased Renewable Energy	
AMCCCG	42,608,343
TEP Owned	
Depreciation	600,000
Maintenance	67,320
Property Tax Expense	0
Return on Investment	1,034,666
TEP Owned	<u>1,701,986</u>
Total Purchased Renewable Energy	<u>44,310,329</u>
Customer Sited DG	
Consumer Education and Outreach	100,000
Meter Reading	38,988
Production Based Incentive Payment	7,192,720
Total Customer Sited DG	<u>7,331,708</u>
Technical Training	95,000
Information Systems	114,000
Metering	
Metering Other	<u>1,067,936</u>
Metering	<u>1,067,936</u>
Labor & Administration	
Internal Labor	219,638
External Labor	171,800
Materials, Fees & Supplies	60,000
AZ Solar Website	4,000
Total Labor & Administration	<u>455,438</u>
Research & Development	
Membership Dues	15,000
University Support	175,000
Research & Development	<u>190,000</u>
Total Expenses	<u>53,564,411</u>
Net Revenue	<u>\$ -</u>

RES Revenue Expenses

Tucson Electric Power
Net Revenue (Expenses)
January through December 2018

	<u>Jan - Dec 18</u>
Revenue	
Tariff Billing	\$ 51,398,704
Total Revenue	<u>51,398,704</u>
Expenses	
Purchased Renewable Energy	
AMCCCG	45,274,981
TEP Owned	
Property Taxes	4,276
Lease Payments	348,540
Depreciation	28,441
Maintenance	1,034,666
Return on Investment	<u>1,415,923</u>
Total TEP Owned	<u>1,415,923</u>
Total Purchased Renewable Energy	46,661,670
Customer Sited DG	
Consumer Education and Outreach	103,995
Production Based Payment	<u>6,910,835</u>
Total Customer Sited DG	7,014,830
Technical Training	98,233
Information Systems	159,904
Metering	840,249
Labor & Administration	
Internal Labor	272,140
External Labor	121,501
Materials, Fees & Supplies	23,372
AZ Solar Website	<u>2,965</u>
Total Labor & Administration	419,977
Research & Development	190,000
Total Expenses	<u>\$ 55,384,862.37</u>
Net Loss for 2018	<u>(3,986,158)</u>
Carry forward Loss from Prior Years	<u>(21,032)</u>
Loss Carry forward to 2020	<u>\$ (4,007,189.95)</u>

Budget Variance Report

Table 3 shows a breakdown of over- and under-collection of RES budget. Below it is a description of the budget variances that were realized between the ACC approved budget, shown on page 11, and the RES program actual expenses, shown on page 12.

Table 3

2018 Under-Collected Revenues	\$ (2,165,707)
2016 Under-Collection carry forward	(21,032)
Purchased Power	(2,666,638)
TEP-Owned Properties	315,298
Information Systems	(45,904)
Performance-Based Incentives	281,885
Metering Costs	266,675
Labor and Administrative	28,233
Total Carry Forward to 2020 (with 2017 carry forward)	\$(4,007,190)

The total expenses in 2018 of \$55,384,862 exceeded the Revenue of \$51,398,704 by \$3,986,158. After applying the negative Carry forward from 2016 of \$21,032 this leaves a balance of \$(4,007,190) of Net Expenses to carry forward to TEP's 2020 Implementation Plan.

- **Revenues:** Overall retail sales for 2018 were less than forecasted, leading to less overall REST revenue.
- **Purchased Power** Due to higher than anticipated energy generation from contracted facilities, payments exceeded the forecasted budget. This includes higher production from participating wind facilities. The Company will use updated capacity factors to more accurately reflect actual production in its 2020 REST Implementation Plan.
- **TEP-Owned Properties:** Depreciation costs were less than anticipated.
- **Information Systems:** Costs associated with processing higher than forecasted DG applications, and data integration with the Company's meter data management system.
- **Performance-Based Incentives:** Overall energy production from these facilities was less than forecasted.
- **Metering Costs:** Not all DG interconnection kits (meter sockets, disconnects, etc.) were picked up by installers.
- **Labor and Administrative:** Lower overall administrative costs.